National Enforcement Initiative (FY 2011 – 2013)
Keeping Raw Sewage and Contaminated Stormwater Out of Our Nation's Waters

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The illegal discharge of raw and partially treated sewage from municipal sewer systems is a persistent problem in large parts of this country. Discharges of contaminated stormwater also occur in many parts of the country. EPA has organized a national enforcement initiative to address the significant risks these discharges pose to human health and to the environment.

Sewer Systems

Raw sewage is a complex and changing stew of disease-causing organisms, toxic metals and other pollutants. Two types of sewer systems have been designed to protect public health and the environment from exposure to this mixture. *Sanitary sewer systems* collect and transport domestic sewage, commercial sewage and industrial wastewater to wastewater treatment plants. *Combined sewer systems* collect together domestic sewage, industrial wastewater and stormwater in the same pipe and transport it to either a wastewater treatment plant or a designated overflow location. In addition, *municipal separate storm sewer systems* discharge untreated stormwater directly into rivers, lakes or other water bodies. Stormwater can carry with it large amounts of sediment, debris and other pollutants, such as oil, paint, pesticides and a variety of chemicals.

The Problem

Many towns and cities in the United States have aging sewer systems that are deteriorating, in desperate need of repair or simply lack adequate capacity to treat the volume of sewage received. Too frequently, these problems cause more than just the overflow of raw sewage into rivers and streams; they can also result in sewage gushing from manholes into streets and yards or cause sewage backups that emerge through toilets and basement drains in homes, schools, restaurants and other buildings. Overflows from either a sanitary or combined sewer system pose potential public health risks, contribute to water quality problems and can cause significant property damage.

What are Sanitary Sewer Overflows?

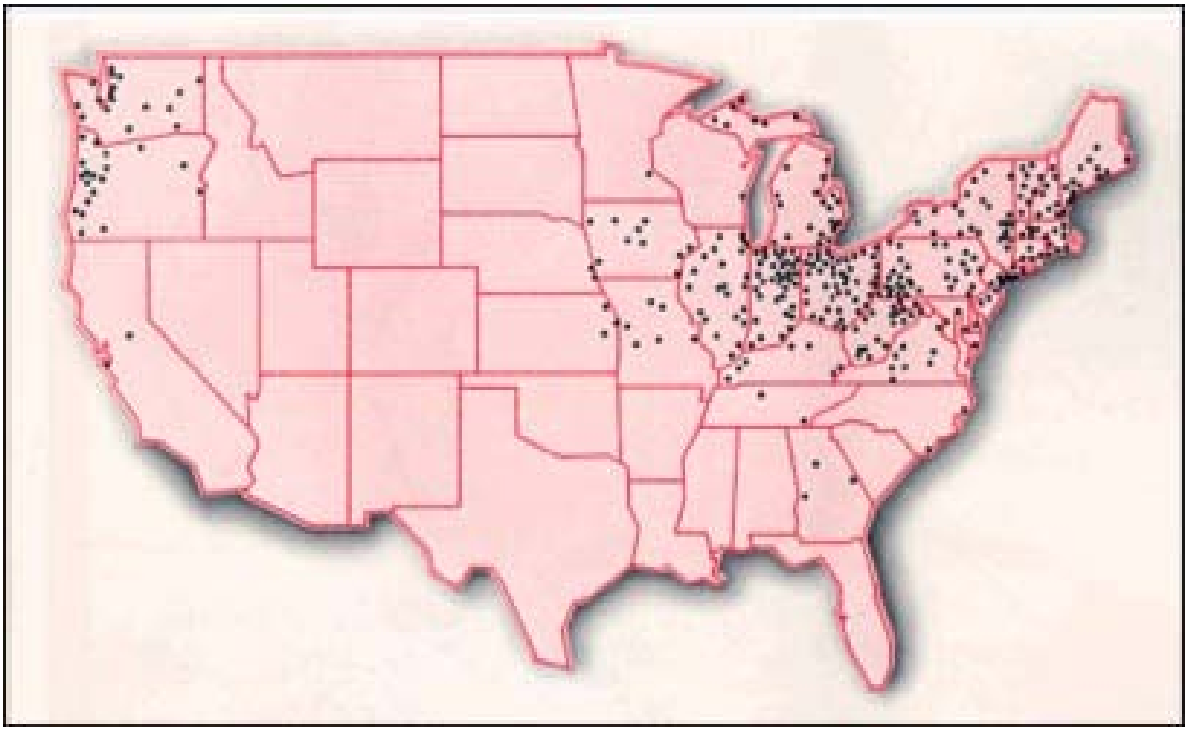
Sanitary sewer overflows (SSOs) are overflows, spills, releases or diversions of raw domestic, commercial and/or industrial wastewater from a *sanitary sewer system*. Although there are a number of laws and regulations at the federal, state and local levels that prohibit these releases, SSOs persist throughout the country because many sewer systems are old, poorly designed, badly constructed, or inadequately maintained. SSOs can also result from inadequate capacity due to urban population growth, sewer line blockages due to grease or tree roots, broken sewer lines due to pipe age or corrosion, sewage pump station failures due to mechanical or electrical issues, or even vandalism, such as citizens dumping debris into manholes. Because lack of preventive maintenance and the absence of long-term planning to correct deficiencies in sanitary sewer systems are the two most important factors contributing to SSOs, significant capital improvements are often necessary to address SSOs.

What are Combined Sewer Overflows?

Combined sewer systems collect stormwater runoff, domestic and commercial sewage, and industrial wastewater in the same pipe. Ordinarily, combined sewer systems transport all of their wastewater to a sewage treatment plant, where it is treated and then discharged to a water body. However, during rainfall events or snowmelt, the wastewater volume in a combined sewer system can exceed the capacity of the sewer system or treatment plant. In anticipation of this problem, combined sewer systems are designed, and permitted under the Clean Water Act pursuant to specified conditions, to overflow occasionally and discharge the untreated excess wastewater directly to nearby streams, rivers or other water bodies. These combined sewer overflows (CSOs) contain stormwater, untreated human and industrial waste, toxic materials and debris. They are frequent causes of beach closures, shellfish bed closures, aesthetic impairments and other water quality problems.

Where are Combined Sewer Systems Located in the United States?

Because combined sewer systems are remnants of the country's early infrastructure, they are typically found in older communities. CSOs are a major water pollution concern for approximately 772 cities in the United States, containing about 40 million people. Most communities with combined sewer systems (and therefore with CSOs) are located in the Northeast and Great Lakes regions, and the Pacific Northwest. The map below provides a rough illustration of the prevalence of combined sewer systems in the United States:



Health Effects of Sewage Overflows

The public health and environmental implications of SSOs and CSOs are significant. Sewage pollutes our waters with pathogens, excess nutrients, heavy metals, and other toxins. It kills aquatic life and creates algal blooms that can suffocate fisheries. Even worse, sewage carries pathogens that can end up in our drinking water supplies and swimming areas. These disease-causing microorganisms can cause fever, abdominal cramps, diarrhea, vomiting or infections of open cuts or rashes. Public exposure to raw sewage can also cause infections of the internal organs, such as hepatitis. Raw sewage that is not promptly and properly cleaned up in a building can lead to the growth of other disease-causing microorganisms, such as tetanus, or toxic fungi and molds.

What are Municipal Separate Stormwater Sewer Systems?

In urban and suburban areas, *municipal separate stormwater sewer systems* (MS4s) transport and discharge untreated stormwater into lakes, rivers, streams and other water bodies, impairing water quality. Stormwater runoff can be contaminated by debris, sediment, heavy metals, oil, pesticides, various chemicals, pathogens and other pollutants. The pollutants in these discharges can cause a variety of diseases in humans, as well as contaminating fish, shellfish and drinking water sources. The sediment load alone, typically the result of construction activities, can destroy aquatic habitats.

Enforcement: Reducing CSOs, SSOs and Stormwater Discharges

Given the serious public health and environmental problems associated with SSOs and CSOs, EPA's enforcement program is continuing to focus on unpermitted raw sewage and stormwater discharges in fiscal years 2011-2013. Although the Agency has already taken a number of enforcement actions for illegal SSOs, CSOs and MS4 discharges across the nation, resulting in the elimination of millions of gallons of raw sewage and contaminated stormwater discharged and the assessment of significant penalties, problems remain in many communities.

In past enforcement actions, EPA typically placed public utilities under a compliance schedule to implement remedial measures to reform the deficiencies in their systems. Because the costs of remediating CSO and SSO problems are very high, those compliance schedules often range from 10 to 20 years. The settlement agreements required public utilities to determine the scope of the problem through a complete assessment of their sewer systems and then create a plan to improve, update and repair the systems. Public utilities also are usually required to develop and implement effective operation and maintenance programs.

As a result of these settlement agreements, citizens may notice large construction projects within their community to increase the capacity of the sewer system or increased cleaning of sewer lines by large vacuum trucks. EPA's settlement agreements have also required public utilities to keep their citizens informed of matters related to SSOs and CSOs, for example by increased public education through community outreach and public information mailed out in sewer bills.

Where can I find more information on SSOs and CSOs?

http://cfpub.epa.gov/npdes/home.cfm?program_id=5

http://cfpub.epa.gov/npdes/home.cfm?program_id=4

http://cfpub.epa.gov/compliance/cases/index.cfm?templatePage=12&ID=3&sortby=&stat=Clean%20Water%20Act

http://www.epa.gov/region4/water/wpeb/momproject/index.html